

We claim:

1. A hinge for a foldable ladder configured for installation in an opening to provide access between one floor or space and another floor or space, comprising:

a first hinge plate rotatably connected to a second hinge plate by a hinge shaft, said first

5 and second hinge plates collectively defining a hinge latch cavity,

a hinge latch movable between a locked position and an unlocked position disposed at least partially within said hinge latch cavity, said hinge latch comprising a first locking portion protruding from said hinge latch, an elongated slot formed within said hinge latch to slidingly receive said hinge shaft, a first opening configured to receive a first biasing member, and a

10 second opening configured to receive a locking member;

a first biasing member fixed, at one end, to said first opening and having another end extending outside of said hinge latch cavity through a slot formed in a respective one of the first and second hinge plates;

a second biasing member disposed within said elongated slot and being fixed, at one end, 15 relative to said hinge shaft and being fixed, at another end, to said hinge latch at another end to bias said hinge latch toward said locked position; and

a locking member disposed on one of the first and second hinge plates to engage said hinge latch second opening when said hinge latch is moved into said unlocked position and secure said hinge latch in said unlocked position,

20 wherein one of the first and second hinge plates defines a lock opening configured to receive said first locking portion of said hinge latch, and

wherein rotational movement of said first hinge plate relative to said second hinge plate is permitted when said hinge latch is secured in said unlocked position.

2. A hinge for a foldable ladder configured for installation in an opening to provide access between one floor or space and another floor or space in accord with claim 1, wherein said first hinge plate comprises a plurality of first hinge plate segments.

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3. A hinge for a foldable ladder configured for installation in an opening to provide access between one floor or space and another floor or space in accord with claim 2, wherein said second hinge plate comprises a plurality of second hinge plate segments.

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4. A hinge for a foldable ladder configured for installation in an opening to provide access between one floor or space and another floor or space in accord with claim 3, wherein said second biasing member is a compression spring configured to abut against said hinge shaft at one end and abut against said elongated slot at another end.

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5. A hinge for a foldable ladder configured for installation in an opening to provide access between one floor or space and another floor or space in accord with claim 4, wherein said first biasing member comprises a shaft bearing a grip at said cantilevered free end.

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6. A hinge for a foldable ladder configured for installation in an opening to provide access between one floor or space and another floor or space in accord with claim 5, wherein said first hinge plate comprises said spring locking member.

7. A hinge for a foldable ladder configured for installation in an opening to provide access between one floor or space and another floor or space, comprising:

an upper hinge casing and a lower hinge casing respectively defining an upper latch cavity and a lower latch cavity and respectively defining a first lock opening and a second lock opening, said upper hinge casing and lower hinge casing being adjacently disposed and rotatably connected to one another by a hinge shaft;

a hinge latch movably positioned with said upper latch cavity and lower latch cavity, said hinge latch comprising a first locking portion and a second locking portion protruding from said hinge latch, a lock recess, a first biasing member connector, and a second biasing member connector, said latch being translatable between a first position and a second position;

wherein said first locking portion and a second locking portion are adapted to engage a respective one of said first lock opening and said second lock opening,

wherein one of said upper hinge casing and said lower hinge casing comprises a locking member positioned to engage said hinge latch lock recess when said hinge latch is moved into said second position and lock said hinge latch in said second position, and

wherein rotational movement of said lower hinge casing relative to said upper hinge casing is prevented by said engagement of said first locking portion and a second locking portion with a respective one of said first lock opening and said second lock opening, and

wherein rotational movement of said lower hinge casing relative to said upper hinge casing is permitted when hinge latch is locked in said second position with said first locking portion and said second locking portion positioned at least partially out of engagement with a respective one of said first lock opening and said second lock opening.

8. A hinge for a foldable ladder configured for installation in an opening to provide access between one floor or space and another floor or space in accord with claim 7, wherein said first biasing member is fixed, at one end thereof, to one of said upper hinge casing and a lower hinge casing and hinge shaft and fixed to said hinge latch at another end to bias said hinge latch toward said locked position.

9. A hinge for a foldable ladder configured for installation in an opening to provide access between one floor or space and another floor or space in accord with claim 8, wherein said second biasing member is fixed, at one end, to said second biasing member connector and having a cantilevered free end extending outside of one of said upper hinge casing and a lower hinge casing through a slot formed in a respective one of said upper hinge casing and a lower hinge casing, said second biasing member configured to enable selective application of a force to said hinge latch in a direction toward said second position.

10. A hinge for a foldable ladder configured for installation in an opening to provide access between one floor or space and another floor or space in accord with claim 9, wherein said first biasing member is a compression spring configured to abut against said hinge shaft at one end and the abut against said first biasing member connector at another end.

11. A hinge for a foldable ladder configured for installation in an opening to provide access between one floor or space and another floor or space in accord with claim 10, wherein said second biasing member comprises a shaft mechanically connected to said second biasing member connector and comprising a grip provided at said cantilevered free end.

12. A hinge for a foldable ladder configured for installation in an opening to provide access between one floor or space and another floor or space in accord with claim 11, wherein said upper hinge casing comprises said spring plunger.

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13. A hinge for a foldable ladder configured for installation in an opening to provide access between one floor or space and another floor or space, comprising:

at least one first hinge plate and a second hinge plate defining a first hinge latch cavity configured to receive a portion of a hinge latch, a portion of said first hinge plate comprising a

10 first hinge shaft opening for a hinge shaft;

at least one second hinge plate defining a second hinge latch cavity configured to receive another portion of said hinge latch, a portion of said second hinge plate comprising a second hinge shaft opening for a hinge shaft;

15 a hinge shaft disposed through the first and second hinge shaft openings so as to permit rotational movement of said second hinge plate relative to said first hinge plate;

a hinge latch movable between a locked position and an unlocked position disposed partially within said first hinge latch cavity and partially within said second hinge latch cavity, said hinge latch comprising a first locking portion protruding from said hinge latch, an elongated slot formed therein configured to slidably receive said hinge shaft, a first opening configured to
20 receive a first biasing member, and a second opening configured to receive a locking member;

a first biasing member fixed, at one end, to said first opening and having another end extending outside of one of said upper hinge plate and said lower hinge plate through a slot formed in a respective one of said upper hinge plate and said lower hinge plate, said second

biasing member configured to enable selective application of a force to said hinge latch in a direction toward said second position;

a second biasing member disposed within said elongated slot being fixed, at one end thereof, relative to said hinge shaft and being fixed to said hinge latch at another end to bias said hinge latch toward said locked position; and

a locking member disposed on one of the first and second hinge plates to engage said hinge latch second opening when said hinge latch is moved into said unlocked position and secure said hinge latch in said unlocked position,

wherein one of the first and second hinge plates defines a lock opening configured to receive said first locking portion of said hinge latch, and

wherein rotational movement of said first hinge plate relative to said second hinge plate is permitted when said hinge latch is secured in said unlocked position.